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| 10/621,577      | 07/18/2003  | Osamu Hoshuyama      | Q76590              | 2125             |

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| EXAMINER |
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SINGH, RAMNANDAN P

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| ART UNIT | PAPER NUMBER |
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2614

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04/02/2008

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

|                              |                                      |   |  |
|------------------------------|--------------------------------------|---|--|
| <b>Office Action Summary</b> | <b>Application No.</b><br>10/621,577 | <b>Applicant(s)</b><br>HOSHUYAMA, OSAMU |  |
|                              | <b>Examiner</b><br>Ramnandan Singh   | <b>Art Unit</b><br>2614                 |  |

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 27 December 2007 & Sep 18, 2007.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-82 is/are pending in the application.
- 4a) Of the above claim(s) 3, 13-29, 32 and 42-82 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1, 2, 5, 30, 31 and 34 is/are rejected.
- 7) ☒ Claim(s) 4, 6-12, 33 and 35-41 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                                | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                       | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## **DETAILED ACTION**

### ***Election/Restrictions.***

1. Applicant's response filed on Dec 27, 2007 confirmed the election of Group I along with Species II. Thus, claims 1-2, 4-12, 30-31 and 33-41 are ready for consideration. As a result, claims 3, 13-29, 32 and 42-82 are withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention. Hence, this restriction is made FINAL.

### ***Claim Rejections - 35 USC § 103***

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1-2, 5, 30-31 and 34 are rejected under 35 U.S.C. 103(a) as being unpatentable over Christenson et al [US 6,510,224 B1].

Regarding claim 1, Christenson et al teach a speech communication apparatus, as shown in Fig. 3, comprising:

a signal output transducer (i.e. loudspeaker 109) for receiving a distant signal (112) from a far-end talker and producing acoustic energy of the distant signal [Fig. 3];

a signal input transducer (microphone 105) for producing a near-end signal which may contain a component representing a speech activity of a near-end talker or an acoustic echo component, or both, wherein the acoustic echo component occurs as a result of the distant signal being transmitted through an acoustic echo path from the signal output transducer to the signal input transducer [Fig. 3];

an echo canceller adaptive filter (101) for producing an echo replica  $y(n)$  (102) from the distant signal (112) and a residual echo  $e(n)$  representing a difference between the near-end signal and the echo replica [Fig. 3]; and

a spectral shaper (309) for receiving both of the near-end signal and the residual echo as a set of first input signals [Fig. 3], receiving the echo replica as a second input signal, the acoustic echo component by modifying the second input signal, and shaping spectrum of the first input signal with the estimated acoustic echo component. [Fig. 3; col. 8, line 25 to col. 10, line 41].

Further, since Christenson et al teach using both of the near-end signal and the residual echo as a set of first input signals to the spectrum shaper (309) [Fig. 3; col. 9, lines 17-45], it would have been obvious to a person of ordinary skill in the art, at the time the invention was made, to use one of the near-end signal and the residual echo as a first input signal to the spectrum shaper (309), as claimed, as a matter of design choice.

Claim 30 is essentially similar to claim 1 and is rejected for the reasons stated above.

Regarding claim 2, Christenson et al teach the speech communication apparatus, wherein the spectral shaper (309) estimates the acoustic echo component for each of a plurality of subband frequencies of audio spectrum [col. 7, line 46 to col. 8, line 9].

Claim 31 is essentially similar to claim 1 and is rejected for the reasons stated above.

4. Claims 5 and 34 are rejected under 35 U.S.C. 103(a) as being unpatentable over Christenson et al as applied to claims 1 and 30 above, and further in view of Oh [US 5,937,060].

Regarding claim 5, although Christenson et al disclose using a plurality of subband frequencies of audio spectrum [col. 7, line 46 to col. 8, line 9; col. 9, lines 21-45, col. 10, lines 16-], they do not teach expressly using a synthesis filter.

Oh teaches using analysis filters (712, 722) to divide input signals into a set of subband signals, and a synthesis filter (734) combine the subband signals [Fig. 7; col. 7, lines 16-31].

At the time of the invention, it would have been obvious to a person of ordinary skill in the art to combine the teachings of Oh with Christenson et al in order to effectively suppress noise in a residual echo signal [Oh; col. 9, lines 18-24].

Claim 34 is essentially similar to claim 5 and is rejected for the reasons stated above.

### ***Allowable Subject Matter***

5. Claims 4,6-12, 33, 35-41 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Claim 4 recites the limitation “wherein the shaper estimates the acoustic echo component from a ratio of the first input signal to spectral the second input signal”. The prior art does not teach this limitation in the context of the claim. Hence claim 4 is objected to.

Claims 6, 10, 33, 35 and 39 are essentially similar to claim 4 and are also objected to.

### ***Response to Arguments***

6. Applicant's arguments filed on Sep 18, 2007 have been considered but are moot in view of the new ground(s) of rejection.

***Conclusion***

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ramnandan Singh whose telephone number is (571) 272-7529. The examiner can normally be reached on M-TH (8:00-5:30).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Fan Tsang can be reached on (571) 272-7547. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the

Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or



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access to the automated information system, call 800-786-9199 (IN USA  
OR CANADA) or 571-272-1000.

/ Ramnandan Singh/  
Primary Examiner, Art Unit 2614